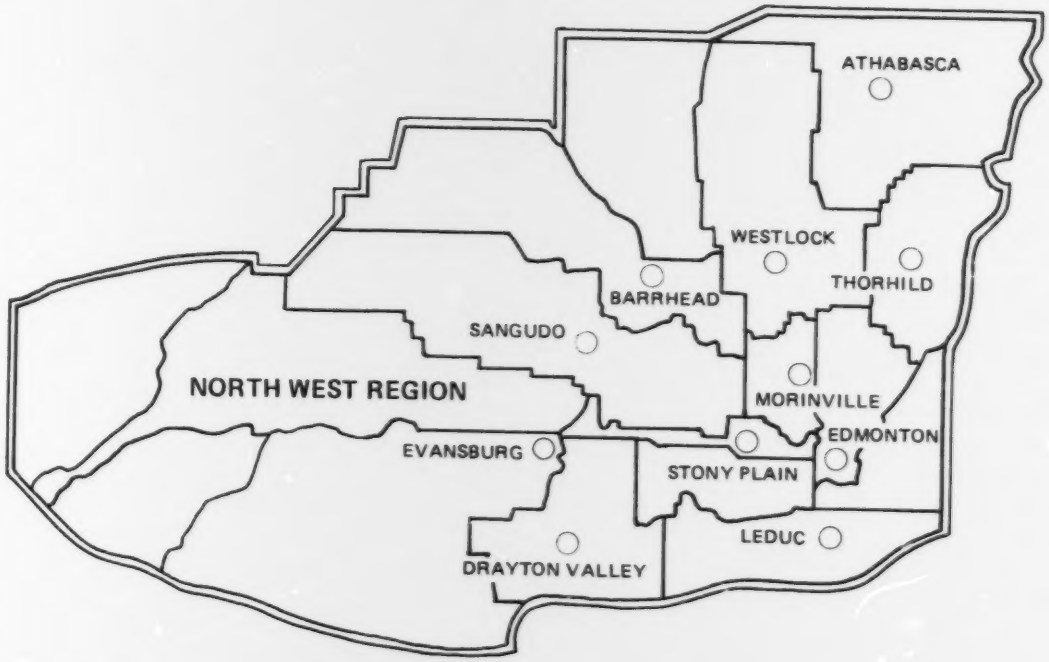
THE ALBERTA REGIONAL FARM ENTERPRISE RESEARCH PROJECT



BARRHEAD REGION 1983

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RESEARCH PROJECT

1983

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BY

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October, 1984

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SECTION 1

INTRODUCTION

The Alberta Regional Farm Enterprise Research Project in the Barrhead Region was initiated by the Production & Resource Economics Branch in the spring of 1981. Its principal goal was to obtain production cost and return estimates for the major agricultural crops grown in the Barrhead Region during the 1980 crop year. To realize this purpose, financial and physical data were gathered from nine farms. All of the farms considered were predominantly grain farms located in the Morinville District with barley, wheat, and canola being the major crops grown. A subsequent report summarizing the findings of this 1980 study was published in December, 1981.

A study of the 1981 crop year was done in 1982. Twelve farms were involved, nine of which were retained from the previous year. The results of this 1981 study were published in a second report entitled: "The Alberta Regional Farm Enterprise Research Project - 1981 - Barrhead Region," in September, 1982. As was initially agreed, the duration of this project would be three production (crop) years. As such, a study of the 1982 production year was done in 1983 for which all twelve farms participated. A report summarizing the results of the 1983 study was published in October, 1983.

Following a general assessment of the 1981, 1982, and 1983 study years, the District Agriculturist requested that the Production & Resource Economics Branch continue the survey for an additional year. All twelve participants were contacted to verify their interest and enthusiasm in studying the 1983 production year. Eleven of the twelve farms cooperated in providing costs/returns data for their farm and these formed the basis of this final report.

Following discussions of the results of the 1981 and 1982 production years with study participants, it was obvious that they found the results to be much more meaningful and beneficial when the information was expressed on a per acre and per bushel basis. By doing this, they were better able to identify and interpret their costs relative to their

returns. They also expressed continued support in knowing about their costs and returns by land tenure (that is, owned land versus rented land). With this in mind, costs and returns data for each crop enterprise studied were collected, analysed and evaluated, based upon the type of land ownership. Shown on page 2 is a breakdown of the major crops studied in 1983.

CROP	NUMBER OF RECORDS
Barley Grown on Owned Land	10
Barley Grown on Rented Land	10
Wheat Grown on Owned Land	5
Wheat Grown on Rented Land	6
Canola Grown on Owned Land	9
Canola Grown on Rented Land	8
Oats grown on Owned and Rented Land*	7
Hay Grown on Owned and Rented Land*	3
Summerfallowing of Owned Land	3
Summerfallowing of Rented Land	3

Objectives:

The Alberta Farm Enterprise Research Project was developed to help the agricultural producer analyze his farming operation using the enterprise approach. Different from the original Farm Business Analysis (F.B.A.) program, this project was designed to provide the farmer with costs and returns information specific to a particular type of crop grown on his farm.

Too often, extension personnel have found themselves short of enterprise/whole farm costs and returns information when dealing with farm clientele at the field level. This, when coupled with the fact that physical and financial data for different farming enterprises vary

* Due to the lack of data for a complete analysis on a land tenure basis, much of the information for oats and hay had to be combined and as such, is presented in a general form.

not only within the region, but also from farm to farm depending upon the enterprise mix, makes the need for such a project only too obvious. Consequently, to accomodate and compensate for some of these needs, the Alberta Regional Farm Enterprise Research project has established as its objectives the following:

1. To document detailed input/output and costs/returns data by enterprise and whole farm for the six farming regions in Alberta;
2. To provide each participant with a comparative interpretation of his farming enterprise relative to the total group studied for a particular region;
3. To provide each participant with accurate and detailed costs/returns information for each enterprise studied, as well as, the overall farm;
4. To evaluate the relative performance of different farming systems on a regional basis and changes in performance over time;
5. To regularly monitor and periodically update the above data base;
6. To establish and maintain contact with the farming community and to be able to promptly respond to the needs of the producers;
7. To provide headquarter staff, agri-business and the extension field staff with accurate and comprehensive resource information.

The Study Sample

Participants for the study were selected based on two criteria, namely, 1) the type of crops grown and 2) size of operation. The selection of participants was done by the District Agriculturist from the Morinville area seeing that he was most familiar with the type of farming operations practised in this region. Of the eleven farms on study in 1983, five had 1,200 acres and more seeded to grain and oilseeds. The remaining six farms had less than 1,200 acres seeded to grain and oilseeds.

Shown below on the map are the approximate locations of the study participants with respect to the town of Morinville.

As all farms participating in the 1983 study year were retained from the 1981 and 1982 studies only one visit was required to record the relevant information. This visit was made during the 1983-84 winter. During this visit an update of inventory data for such items as machinery, land, buildings, etc. was made. Main discussion with the participants related to the actual amounts of physical inputs used in the production of each specific crop, as well as, the recording of the operating costs.

The questionnaire used in this study was exactly the same as that used in the previous year and contained three sections. Section I was simply a recording of all receipts and expenses incurred on the farm and was quite similar to the information required for income tax purposes. Section II was a little different in that it was designed to record data specific to each crop enterprise and to a greater extent relied upon the participants' judgement to best allocate their total farm receipts and expenses with respect to the various crops considered. Section III reported both physical and financial data specific to each crop that was not recorded in Sections I and II.

Method of Analysis:

The reader should be aware that all of the costs and returns data provided in this report are expressed on a per unit of production basis. For example, the information provided with regards to grain production is expressed on a per acre, as well as, on a per bushel basis.

In the summary tables provided, determination of cost for each category of expense was calculated by taking the summation of all expenses in that category and dividing by the total units of production on survey. To illustrate, suppose one wanted to calculate the fertilizer expense for wheat production as incurred by five farms. The method used was simply an addition of each of the five farms total fertilizer expense thereby, yielding a grand total which was subsequently divided by the total wheat acreage for the five farms considered. By using this approach, the costs and returns data were weighted on a per unit of production basis rather than calculated using the simple average method.

1. Receipts: Receipts or returns as it is sometimes called, for a given crop represent the value amount of that crop and was essentially the same as that recorded for income tax purposes. It should be mentioned that since the normal practice is that the total harvest of a given crop in any given year is not completely sold until sometime during the following year, the value of the 1983 crop had to be estimated. In adition, study participants also indicated

miscellaneous receipts that were associated with the crop, and included such items as patronage dividends, gas rebates, crop insurance, custom work etc.

2. Labour Costs: The principal source of labour for the farms studied came from the farmer (operator) and his family. Operator and family labour were valued on an annual basis and allocated accordingly to the various enterprises on the farm. As was revealed, in certain cases some of the participants had to rely on paid full-time or part-time labour to perform some of the necessary farming operations. For such situations, total labour cost as reported in the year-end statement was allocated to the various enterprises on the farm by the participant himself who was most familiar with what the hired man was doing.

3. Material Costs: Most of the supplies used on the grain farms were bought during the production year and were recorded as such. However, it was necessary to record the inventory of many inputs such as fertilizer, seeds and chemicals since these inputs might have been purchased during the previous year for use in the production year under study. Despite this, an attempt was made to accurately monitor all costs used in the production of a crop, regardless of when purchased or applied to the land (for example, fall fertilization). Home-grown seed was valued at the current market price (at time of analysis) and was treated as an operating cost.

4. Miscellaneous Costs: Items such as property taxes, insurance, utilities, etc. were valued at the actual amounts paid, and was proportionately allocated to each of the crops considered. Also, included in this category were the purchases of small tools, accounting and legal fees, building repairs, and crop share/cash rent.

5. Machine Costs: Machine operating costs consisted of machine repairs, fuel, lubrication and insurance expenses. In order to allow for easier allocation and computation of machine cost for a specific enterprise, this cost was broken down into several sub-categories. The sub-categories considered were: farm power machinery, general crop machinery, haying machinery and specialty crop machinery.

6. Investment Costs: An opportunity cost was calculated on the equity portion of land, buildings, and machinery investment. The market value of all investment items were given by the study participants themselves. They also provided information such as the amounts of short term, intermediate and long term loans that were outstanding. With this kind of information an equity base was established and a long term percentage rate of return of seven per cent was applied to arrive at the opportunity cost on the operator's investment. Indicated under the heading of "Production Costs" in the summary tables are the opportunity costs on equity, and together with the total operating costs, long term interest paid and the value of unpaid labour make up the total production cost.

For the purpose of this study a fixed rate of depreciation was used for each category of investment. For example, for power and general crop machinery a depreciation rate of 10 per cent was charged while a 5 per cent depreciation was used for buildings. This allowance for depreciation is shown under the heading of "Operating Costs" of the summary tables.

SECTION II

SUMMARY OF COSTS AND RETURNS FOR THE STUDY GROUP

This section provides detailed information on the group average costs and returns for the various crops analysed.[1] Consistent with what was reported in the previous study years, barley was the most extensively grown crop in the Barrhead region, as all of the eleven farms studied were able to provide related costs and returns information. Group average costs and returns data are also provided for the production of wheat, canola, oats and hay.

The data as presented in the summary tables are divided into five sections. Section A provides information relating to farm income. The phrase acreage per farm is simply the average size of a given crop grown by a typical study participant. The term yield per acre is the weighted yield for the total acres under study. Receipts, expressed on a per acre basis were derived from two sources namely, from the value of the crop itself and secondly, from miscellaneous crop receipts such as crop insurance, stabilization payments, value of aftermath, patronage payments etc. Receipts on a per acre and a per bushel basis are shown for easy comparison.

Section B presents operating cost data which basically include all "out of pocket" costs and an allowance for depreciation. As most farmers are interested in knowing their break-even point in production, total operating costs data were given on a per unit basis as this can be interpreted as a short run break-even price required to cover the cost of production. Knowledge of this type of information is very useful to the farmer in the making of management decisions especially, when choosing among different alternatives.

Indicated in Section C is the total cost of production for a given crop. Again, the information presented here is expressed on a per acre

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[1] All study participants are interested in knowing how the economics of their operations compare to the group average.

and per bushel basis to allow for easy comparison and interpretation. As shown, total operating costs plus, an opportunity cost on the equity portion of investment, along with unpaid family labour and long term interest paid equal total production cost. It is important to note that any income received over and above the total production cost can be interpreted as a return to management or profit.

Section D attempts to evaluate the farmer's management ability by providing such information as: i) the return over operating costs; ii) return to management and iii) total labour hours used. Of critical importance to the farmer is the value of the return over operating costs, seeing that this is normally the figure which is referred to when choosing among different crop alternatives. Generally speaking, the farmer wishes to see his return over operating costs to be positive and as large as possible. In the event that this figure is large and negative, the farmer is better off shifting his present resources to other more profitable production activities.

All of the investment items in relation to a given crop are shown in Section E. The purpose of having such information enables the operator to compare the use of his capital among different investments alternatives and to adjust same as is necessary. Information on total investment and labour hours used are most useful to the farmer especially, when he is making management decisions concerning the expansion of his farm or choosing among the different alternatives that are at his disposal.

On the next two pages is a summary of the costs and returns for the major crops studied in the Barrhead Region. The information presented here is indicative of all of the respective enterprise reports gathered from the twelve farms surveyed. More detailed analyses of group average costs and returns for the various crops studied are presented in Tables 2 through 11 inclusive.

TABLE 1: SUMMARY OF COSTS AND RETURNS FOR CROPS SURVEYED - 1983, BARRHEAD REGION

	Barley		Wheat		Canola	
	Owned	Rented	Owned	Rented	Owned	Rented
Number of Farms	10	10	5	6	9	8
Average Acreage	300.1	475.40	164.6	236.2	136.67	333.75
Yield (Bushels/Acre)	48.93	49.82	34.79	41.59	15.07	17.77
Receipts ($/Acre)	136.36	124.91	155.00	183.59	160.06	159.39
			Dollars Per Acre			
Material Costs	37.85	35.43	43.24	40.43	42.01	38.43
Machine Operating	15.65	16.28	14.29	15.00	15.19	16.21
Miscellaneous	17.15	39.08	18.01	34.27	21.80	38.95
TOTAL CASH COSTS	70.65	90.79	75.54	89.70	79.00	93.59
Depreciation	27.29	22.20	22.33	26.85	25.00	25.27
TOTAL OPERATING COSTS	97.94	112.99	97.87	116.55	104.00	118.86
Interest on Equity	100.08	13.57	96.88	16.67	97.47	15.49
Long Term Interest Paid	3.22	7.43	3.35	4.40	5.46	5.49
Unpaid Labour	19.18	17.32	15.98	18.80	17.43	18.68
TOTAL PRODUCTION COSTS	220.41	151.31	214.08	156.41	224.36	158.53
Return Over Operating Costs	38.42	11.92	57.14	67.05	56.06	40.53
Return To Management	-84.05	-26.40	-59.07	27.19	-64.30	0.86
			Bushels Per Acre			
Break-even Yield To Cover:						
Cash Costs	25.3	36.2	16.9	20.3	7.4	10.4
Operating Costs	35.1	45.0	21.9	26.4	9.8	13.3
Total Production Costs	79.0	60.3	48.0	35.5	21.1	17.7

TABLE 1 Cont'd: SUMMARY OF COSTS AND RETURNS FOR CROPS SURVEYED - 1983, BARRHEAD REGION

	Oats	HAY	Summerfallow	
			Owned	Rented
Number of Farms	7	3	3	3
Average Acreage	101.71	49.0	197.14	175.67
Yield (Bushels/Acre)	54.83	3.37 Tons	-	-
Receipts ($/Acre)	97.96	232.49	0.33	0.99
		Dollars Per Acre		
Material Costs	28.69	3.61	-	-
Machine Operating	11.90	9.41	7.48	6.34
Miscellaneous	21.94	7.49	7.45	3.61
TOTAL CASH COSTS	62.53	20.51	14.93	9.95
Depreciation	26.54	18.72	13.08	13.95
TOTAL OPERATING COSTS	89.07	39.23	28.01	23.90
Interest on Equity	55.67	95.85	91.23	9.23
Long Term Interest Paid	2.34	4.00	0.97	0.77
Unpaid Labour	15.66	9.83	8.71	8.23
TOTAL PRODUCTION COSTS	162.73	148.91	128.92	42.14
Return Over Operating Costs	8.89	193.26	-27.68	-22.92
Return To Management	-64.77	83.58	-128.59	-41.16
		Bushels Per Acre		
Break-even Yield To Cover:				
Cash Costs	34.9	0.30 Tons	-	-
Operating Costs	49.8	0.57 Tons	-	-
Total Production Costs	90.9	2.16 Tons	-	-

Barley Production

A total of eleven farms grew barley on both owned and rented land in 1982. The average yield per acre was 48.93 bushels on owned land while on rented land it was 49.82 bushels (Tables 2 and 3). In terms of anticipated returns from barley sold, returns were much higher on owned land at $136.36 per acre ($2.79 per bushel) as compared to $124.91 per acre ($2.51 per bushel) on rented land. Total operating costs for barley grown on owned land averaged $97.94 per acre ($2.00 per bushel), an amount that was considerably lower than the operating costs of $112.99 per acre ($2.27 per bushel) for barley grown on rented land. The higher operating cost as noted for the rented land, in part, reflects the value of cash rent/crop share which in the case of barley averaged $26.79 per acre.

For barley grown on owned land, the most significant operating costs were material inputs, machinery fuel and repairs and depreciation which accounted for 38.7 per cent, 16.0 per cent and 27.9 per cent of the total, respectively. For rented land, one of the more significant operating costs was cash rent/crop share which represented 23.8 per cent of the total. Other significant costs were material inputs, depreciation and fuel/repairs which amounted to 31.4 per cent, 14.4 per cent and 19.7 per cent of the total operating costs, respectively.

When considering total production costs, these were found to be higher on the owned land at $220.41 per acre ($4.50 per bushel) as opposed to $151.31 per acre ($3.04 per bushel) on rented land. These results were to be expected due to the method used in the valuing of owned land. For the purpose of this study, land was valued at $1200.00 per acre and to reflect the opportunity cost of owning such land, an interest rate of seven per cent was charged. Consequently, study participants growing barley on their owned land had the highest land cost at $82.04 per acre as compared to those who grew their barley on rented land. Farmers who rented land reported a land cost of only $26.79 per acre.

Close examination of returns over operating costs shows that a definite advantage exists in the owning of land as opposed to renting. To illustrate, return over operating costs for farmers who owned their

TABLE 2:

ALBERTA FARM ENTERPRISE RESEARCH PROJECT BARRHEAD REGION 4 SEPT 1984

BARLEY OWNED CROP ENTERPRISE - 10 Farms

		TOTAL	PER UNIT	PER ACRE
A.	INCOME		$/Bu	
	NUMBER OF ACRES	300.10		
	TOTAL PRODUCTION	14683.20		48.93
	CROP VALUE	40834.10		136.07
	CROP INSURANCE RECEIPTS			
	MISCELLANEOUS RECEIPTS	87.00		0.29
	GROSS INCOME	40921.10	2.79	136.36
B.	OPERATING COSTS			
	FERTILIZER	6109.00		20.36
	CHEMICALS	2965.10		9.88
	SEED PURCHASED	748.70		2.49
	HOME GROWN SEED	1536.00		5.12
	CUSTOM WORK HIRED	776.80		2.59
	CROP AND HAIL INSURANCE	315.60		1.05
	CASH RENT AND CROP SHARE			
	POWER MACHINERY - FUEL	2866.70		9.55
	POWER MACHINERY - REPAIRS	1830.00		6.10
	GENERAL MACHINERY - REPAIRS			
	SPECIAL MACHINERY - REPAIRS			
	MISCELLANEOUS EQUIPMENT			
	BUILDING REPAIRS	237.55		0.79
	OPERATING CAPITAL INTEREST PD.	46.60		0.16
	UTILITIES	576.10		1.92
	OTHER INSURANCE	325.00		1.08
	PROPERTY TAXES	1135.20		3.78
	ACCOUNTING AND LEGAL	353.40		1.18
	OTHER	592.80		1.98
	HIRED LABOUR	645.70		2.15
	TOOLS PURCHASED	142.50		0.47
	DEPRECIATION - IMPROVEMENTS	850.90		2.84
	DEPRECIATION - MACHINERY	7337.80		24.45
	TOTAL OPERATING COSTS	29391.45	2.00	97.94
C.	PRODUCTION COSTS			
	OPERATING COSTS	29391.45		97.94
	INT. ON EQUITY - OWNED LAND	24620.56		82.04
	INT. ON EQUITY - IMPROVEMENTS	1105.89		3.69
	INT. ON EQUITY - MACHINERY	4306.66		14.35
	INT. ON EQUITY - SUPPLIES			
	INTEREST ON LONG TERM DEBT	965.50		3.22
	OPERATOR'S LABOUR	5704.40		19.01
	FAMILY LABOUR	50.20		0.17
	TOTAL PRODUCTION COSTS	66144.62	4.50	220.41
D.	MANAGEMENT FACTORS			
	RETURN OVER OPERATING COSTS	11529.64	0.79	38.42
	RETURN TO MANAGEMENT	-25223.55	-1.72	-84.05
	LABOUR USED (HOURS)	928.90	0.06	3.10

		OPERATOR	LANDLORD	PER ACRE
E.	INVESTMENT ITEMS			
	SUPPLY INVENTORY			
	POWER MACHINERY	48722.20		162.35
	OTHER MACHINERY	16767.40		55.87
	BUILDINGS AND IMPROVEMENTS	15808.40	279.80	53.61
	LAND	360120.00		1200.00
	TOTAL INVESTMENT	441418.00	279.80	1471.84

TABLE 3:
ALBERTA FARM ENTERPRISE RESEARCH PROJECT BARRHEAD REGION 4 SEPT 1984

BARLEY RENTED CROP ENTERPRISE - (10 Farms)

		TOTAL	PER UNIT $/Bu	PER ACRE
A.	INCOME			
	NUMBER OF ACRES	475.40		
	TOTAL PRODUCTION	23683.20		49.82
	CROP VALUE	59328.10		124.80
	CROP INSURANCE RECEIPTS			
	MISCELLANEOUS RECEIPTS	55.50		0.12
	GROSS INCOME	59383.60	2.51	124.91
B.	OPERATING COSTS			
	FERTILIZER	9817.90		20.65
	CHEMICALS	3826.20		8.05
	SEED PURCHASED	1083.40		2.28
	HOME GROWN SEED	2116.50		4.45
	CUSTOM WORK HIRED	1223.10		2.57
	CROP AND HAIL INSURANCE	262.20		0.55
	CASH RENT AND CROP SHARE	12737.20		26.79
	POWER MACHINERY - FUEL	4346.00		9.14
	POWER MACHINERY - REPAIRS	3392.20		7.14
	GENERAL MACHINERY - REPAIRS			
	SPECIAL MACHINERY - REPAIRS			
	MISCELLANEOUS EQUIPMENT			
	BUILDING REPAIRS	241.55		0.51
	OPERATING CAPITAL INTEREST PD.	165.00		0.35
	UTILITIES	694.40		1.46
	OTHER INSURANCE	522.70		1.10
	PROPERTY TAXES	139.70		0.29
	ACCOUNTING AND LEGAL	370.40		0.78
	OTHER	415.20		0.87
	HIRED LABOUR	1644.10		3.46
	TOOLS PURCHASED	162.80		0.34
	DEPRECIATION - IMPROVEMENTS	1185.50		2.49
	DEPRECIATION - MACHINERY	9369.50		19.71
	TOTAL OPERATING COSTS	53715.55	2.27	112.99
C.	PRODUCTION COSTS			
	OPERATING COSTS	53715.55		112.99
	INT. ON EQUITY - OWNED LAND			
	INT. ON EQUITY - IMPROVEMENTS	1284.26		2.70
	INT. ON EQUITY - MACHINERY	5166.41		10.87
	INT. ON EQUITY - SUPPLIES			
	INTEREST ON LONG TERM DEBT	3532.90		7.43
	OPERATOR'S LABOUR	7494.70		15.77
	FAMILY LABOUR	738.90		1.55
	TOTAL PRODUCTION COSTS	71932.69	3.04	151.31
D.	MANAGEMENT FACTORS			
	RETURN OVER OPERATING COSTS	5668.05	0.24	11.92
	RETURN TO MANAGEMENT	-12549.09	-0.53	-26.40
	LABOUR USED (HOURS)	1382.80	0.06	2.91

		OPERATOR	LANDLORD	PER ACRE
E.	INVESTMENT ITEMS			
	SUPPLY INVENTORY			
	POWER MACHINERY	59135.30		124.39
	OTHER MACHINERY	23382.80		49.19
	BUILDINGS AND IMPROVEMENTS	19988.60	1218.70	44.61
	LAND		570480.00	1200.00
	TOTAL INVESTMENT	102506.69	571698.69	1418.19

land was $38.42 per acre ($0.79 per bushel) compared to $11.92 per acre ($0.24 per bushel) for farmers who rented land. However, when non-cash costs are considered, the situation as expressed by return to management does not look too favorable for either enterprise. For example, return to management was $-84.05 per acre ($-1.72 per bushel) for barley production on owned land. For farmers renting land their return to management was $-26.40 per acre ($-0.53 per bushel). The break-even yields required for barley on owned and rented land were 79.0 and 60.3 bushels per acre, respectively.

Total investment was much higher for barley produced on owned land at $1471.84 per acre. Of this, 81.6 per cent was allocated to land. On a per acre basis, machinery investment amounted to $218.22 or 14.9 per cent of the total. In passing, it should be mentioned that the typical study participant spent an average of 3.10 hours of labour per acre.

For barley grown on rented land, total investment was $218.19 per acre, an amount which excludes the landlord's contribution. Machinery investment totalled $173.58 per acre, representing 79.6 per cent of the total investment. Labour used on rented land averaged 2.91 hours per acre.

Wheat Production

Out of the eleven wheat enterprises analyzed in 1983, five of the operators had owned land while the remaining six operated on rented land (Tables 4 and 5). Wheat yields on owned land averaged 34.79 bushels per acre. On rented land yields were significantly higher at 41.59 bushels per acre. As a consequence, anticipated returns were much higher on rented land at $183.59 per acre ($4.46 per bushel) versus $183.59 per acre ($4.41 per bushel) on rented land.

Operating costs for wheat grown on owned land was $97.87 per acre ($2.81 per bushel), a value lower than that for wheat grown on rented land ($116.55 per acre or $2.80 per bushel). Most significant of the total operating costs for wheat grown on owned land were material inputs which amounted to $43.24 per acre, followed by depreciation at $22.33 per acre, and fuel and repairs at $14.29 per acre. Altogether, these

TABLE 4:

ALBERTA FARM ENTERPRISE RESEARCH PROJECT BARRHEAD REGION 4 SEPT 1984

WHEAT OWNED CROP ENTERPRISE - (5 Farms)

		TOTAL	PER UNIT	PER ACRE
A.	INCOME			
	NUMBER OF ACRES	164.60		
	TOTAL PRODUCTION	5726.40	$/Bu	34.79
	CROP VALUE	25513.60		155.00
	CROP INSURANCE RECEIPTS			
	MISCELLANEOUS RECEIPTS			
	GROSS INCOME	25513.60	4.46	155.00
B.	OPERATING COSTS			
	FERTILIZER	3451.80		20.97
	CHEMICALS	2041.60		12.40
	SEED PURCHASED	475.00		2.89
	HOME GROWN SEED	1148.60		6.98
	CUSTOM WORK HIRED	414.20		2.52
	CROP AND HAIL INSURANCE	167.60		1.02
	CASH RENT AND CROP SHARE			
	POWER MACHINERY - FUEL	1482.80		9.01
	POWER MACHINERY - REPAIRS	869.00		5.28
	GENERAL MACHINERY - REPAIRS			
	SPECIAL MACHINERY - REPAIRS			
	MISCELLANEOUS EQUIPMENT			
	BUILDING REPAIRS	144.10		0.88
	OPERATING CAPITAL INTEREST PD.	133.80		0.81
	UTILITIES	292.80		1.78
	OTHER INSURANCE	202.60		1.23
	PROPERTY TAXES	700.40		4.26
	ACCOUNTING AND LEGAL	184.60		1.12
	OTHER	341.60		2.08
	HIRED LABOUR	214.20		1.30
	TOOLS PURCHASED	167.80		1.02
	DEPRECIATION - IMPROVEMENTS	402.20		2.44
	DEPRECIATION - MACHINERY	3274.00		19.89
	TOTAL OPERATING COSTS	16108.70	2.81	97.87
C.	PRODUCTION COSTS			
	OPERATING COSTS	16108.70		97.87
	INT. ON EQUITY - OWNED LAND	13591.86		82.58
	INT. ON EQUITY - IMPROVEMENTS	509.25		3.09
	INT. ON EQUITY - MACHINERY	1845.91		11.21
	INT. ON EQUITY - SUPPLIES			
	INTEREST ON LONG TERM DEBT	551.40		3.35
	OPERATOR'S LABOUR	2429.40		14.76
	FAMILY LABOUR	200.40		1.22
	TOTAL PRODUCTION COSTS	35236.90	6.15	214.08
D.	MANAGEMENT FACTORS			
	RETURN OVER OPERATING COSTS	9404.90	1.64	57.14
	RETURN TO MANAGEMENT	-9723.32	-1.70	-59.07
	LABOUR USED (HOURS)	421.80	0.07	2.56

		OPERATOR	LANDLORD	PER ACRE
E.	INVESTMENT ITEMS			
	SUPPLY INVENTORY			
	POWER MACHINERY	19170.80		116.47
	OTHER MACHINERY	9367.00		56.91
	BUILDINGS AND IMPROVEMENTS	7603.60		46.19
	LAND	197520.00		1200.00
	TOTAL INVESTMENT	233661.37		1419.57

TABLE 5:

ALBERTA FARM ENTERPRISE RESEARCH PROJECT BARRHEAD REGION 4 SEPT 1984

WHEAT RENTED CROP ENTERPRISE - (6 Farms)

		TOTAL	PER UNIT	PER ACRE
A.	INCOME			
	NUMBER OF ACRES	236.17		
	TOTAL PRODUCTION	9822.33	$/Bu	41.59
	CROP VALUE	41707.16		176.60
	CROP INSURANCE RECEIPTS	1478.17		6.26
	MISCELLANEOUS RECEIPTS	173.50		0.73
	GROSS INCOME	43358.83	4.41	183.59
B.	OPERATING COSTS			
	FERTILIZER	5370.33		22.74
	CHEMICALS	2407.67		10.19
	SEED PURCHASED	49.33		0.21
	HOME GROWN SEED	1721.83		7.29
	CUSTOM WORK HIRED	400.67		1.70
	CROP AND HAIL INSURANCE	372.33		1.58
	CASH RENT AND CROP SHARE	5242.83		22.20
	POWER MACHINERY - FUEL	2136.83		9.05
	POWER MACHINERY - REPAIRS	1404.17		5.95
	GENERAL MACHINERY - REPAIRS			
	SPECIAL MACHINERY - REPAIRS			
	MISCELLANEOUS EQUIPMENT			
	BUILDING REPAIRS	346.00		1.47
	OPERATING CAPITAL INTEREST PD.	68.67		0.29
	UTILITIES	442.67		1.87
	OTHER INSURANCE	353.33		1.50
	PROPERTY TAXES			
	ACCOUNTING AND LEGAL	288.17		1.22
	OTHER	227.00		0.96
	HIRED LABOUR	203.33		0.86
	TOOLS PURCHASED	149.33		0.63
	DEPRECIATION - IMPROVEMENTS	677.00		2.87
	DEPRECIATION - MACHINERY	5663.33		23.98
	TOTAL OPERATING COSTS	27524.83	2.80	116.55
C.	PRODUCTION COSTS			
	OPERATING COSTS	27524.83		116.55
	INT. ON EQUITY - OWNED LAND			
	INT. ON EQUITY - IMPROVEMENTS	734.05		3.11
	INT. ON EQUITY - MACHINERY	3202.60		13.56
	INT. ON EQUITY - SUPPLIES			
	INTEREST ON LONG TERM DEBT	1038.33		4.40
	OPERATOR'S LABOUR	3947.83		16.72
	FAMILY LABOUR	490.50		2.08
	TOTAL PRODUCTION COSTS	36938.12	3.76	156.41
D.	MANAGEMENT FACTORS			
	RETURN OVER OPERATING COSTS	15834.00	1.61	67.05
	RETURN TO MANAGEMENT	6420.68	0.65	27.19
	LABOUR USED (HOURS)	610.33	0.06	2.58

		OPERATOR	LANDLORD	PER ACRE
E.	INVESTMENT ITEMS			
	SUPPLY INVENTORY			
	POWER MACHINERY	36197.83		153.27
	OTHER MACHINERY	14573.33		61.71
	BUILDINGS AND IM. ROVEMENTS	11307.83	659.33	50.67
	LAND		283400.00	1200.00
	TOTAL INVESTMENT	62079.00	284059.31	1465.65

represented 81.6 per cent of the total operating costs. For wheat grown on rented land the major operating costs included material inputs at $40.43 per acre, cash rent/crop share at $22.20 per acre, depreciation at $26.85 per acre, and fuel/repairs at $15.00 per acre. Collectively, these items represented 89.7 per cent of the total operating costs.

In addition to the operating costs were other cost factors. These were the opportunity costs on the equity portion of investment, long term interest paid and the value of unpaid family labour. Coupling the opportunity cost and unpaid family labour cost resulted in a value of $176.21 per acre for wheat grown on owned land, which when added to the operating costs resulted in a total production cost of $214.08 per acre ($6.15 per bushel). With returns averaging $4.46 per bushel for wheat grown on owned land, the wheat enterprise was able to realize a return over operating costs of $57.14 per acre ($1.64 per bushel). Despite this however, it was still short $59.07 per acre ($1.70 per bushel) in covering total costs.

Total production costs for wheat grown on rented land amounted to $156.41 per acre ($3.76 per bushel). With returns averaging $183.59 per acre and an operating cost of $116.55, a return over operating costs of $67.05 per acre ($1.61 per bushel) was realized. Return to management were also quite favourable at $27.19 per acre ($0.65 per bushel).

As can be seen from Tables 4 and 5, total investment was significantly higher for wheat grown on owned land as compared to the wheat grown on rented land. For wheat grown on owned land total investment was $1,419.57 per acre while on rented land a total investment of $265.65 per acre was reported. In terms of labour hours spent per acre, a similar time 2.57 hours per acre was spent by farmers who rented their land as well as those owning it.

Canola Production

The average size of the seventeen canola enterprises surveyed in 1983 was 229 acres. In terms of land tenure, there were nine operations on owned land while the remaining eight were on rented land. Average canola yield, as shown in Tables 6 and 7 was 15 per cent lower on owned land at 15.07 bushels per acre compared to 17.77 bushels per acre reported for rented land. Despite this difference, anticipated returns were quite similar at $160.06 per acre ($10.62 per bushel) on owned land compared to $159.39 per acre ($8.97 per bushel) on rented land.

Operating costs for canola grown on owned land was $104.00 per acre ($6.90 per bushel). A much higher cost of $118.86 per acre ($6.69 per bushel) was recorded for canola grown on rented land. Most significant of the operating costs for canola grown on owned land were material inputs at $42.01 per acre, depreciation at $25.00 and fuel and repairs at $15.19 per acre. Included in the total operating cost for canola on rented land were cash rent/crop share at $24.53 per acre, material inputs at $38.43 per acre, depreciation at $25.27 per acre and fuel and repairs at $16.21 per acre.

Total production costs were much higher for canola grown on owned land as compared to canola grown on rented land. For owned land it was $224.36 per acre ($14.89 per bushel) versus $158.53 per acre ($8.92 per bushel) on rented land. Return over operating costs for canola on owned land was $56.06 per acre ($3.72 per bushel), and was insufficient by $64.30 per acre ($4.27 per bushel) in covering total production costs.

Canola grown on rented land had returns over operating costs of $40.53 per acre ($2.28 per bushel) and a return to management of $0.86 per acre ($0.05 per bushel).

TABLE 6:
ALBERTA FARM ENTERPRISE RESEARCH PROJECT BARRHEAD REGION 4 SEPT 1984

CANOLA OWNED CROP ENTERPRISE - (9 Farms)

		TOTAL	PER UNIT $/Bu	PER ACRE
A.	INCOME			
	NUMBER OF ACRES	136.67		
	TOTAL PRODUCTION	2059.89		15.07
	CROP VALUE	20682.11		151.33
	CROP INSURANCE RECEIPTS	1155.56		8.46
	MISCELLANEOUS RECEIPTS	36.89		0.27
	GROSS INCOME	21874.55	10.62	160.06
B.	OPERATING COSTS			
	FERTILIZER	2798.11		20.47
	CHEMICALS	1447.33		10.59
	SEED PURCHASED	1125.11		8.23
	HOME GROWN SEED	372.00		2.72
	CUSTOM WORK HIRED	331.33		2.42
	CROP AND HAIL INSURANCE	377.44		2.76
	CASH RENT AND CROP SHARE			
	POWER MACHINERY - FUEL	1211.89		8.87
	POWER MACHINERY - REPAIRS	863.11		6.32
	GENERAL MACHINERY - REPAIRS			
	SPECIAL MACHINERY - REPAIRS			
	MISCELLANEOUS EQUIPMENT			
	BUILDING REPAIRS	114.83		0.84
	OPERATING CAPITAL INTEREST PD.	58.22		0.43
	UTILITIES	236.89		1.73
	OTHER INSURANCE	170.78		1.25
	PROPERTY TAXES	481.44		3.52
	ACCOUNTING AND LEGAL	139.00		1.02
	OTHER	703.44		5.15
	HIRED LABOUR	291.67		2.13
	TOOLS PURCHASED	75.00		0.55
	DEPRECIATION - IMPROVEMENTS	374.11		2.74
	DEPRECIATION - MACHINERY	3041.89		22.26
	TOTAL OPERATING COSTS	14213.61	6.90	104.00
C.	PRODUCTION COSTS			
	OPERATING COSTS	14213.61		104.00
	INT. ON EQUITY - OWNED LAND	11170.50		81.74
	INT. ON EQUITY - IMPROVEMENTS	441.45		3.23
	INT. ON EQUITY - MACHINERY	1708.48		12.50
	INT. ON EQUITY - SUPPLIES			
	INTEREST ON LONG TERM DEBT	746.00		5.46
	OPERATOR'S LABOUR	2170.11		15.88
	FAMILY LABOUR	211.78		1.55
	TOTAL PRODUCTION COSTS	30661.91	14.89	224.36
D.	MANAGEMENT FACTORS			
	RETURN OVER OPERATING COSTS	7660.94	3.72	56.06
	RETURN TO MANAGEMENT	-8787.37	-4.27	-64.30
	LABOUR USED (HOURS)	402.11	0.20	2.94

		OPERATOR	LANDLORD	PER ACRE
E.	INVESTMENT ITEMS			
	SUPPLY INVENTORY			
	POWER MACHINERY	18742.89		137.14
	OTHER MACHINERY	7918.66		57.94
	BUILDINGS AND IMPROVEMENTS	6717.66		49.15
	LAND	164000.00		1200.00
	TOTAL INVESTMENT	197379.19		1444.24

TABLE 7:

ALBERTA FARM ENTERPRISE RESEARCH PROJECT BARRHEAD REGION 4 SEPT 1984

CANOLA RENTED CROP ENTERPRISE - (8 Farms)

		TOTAL	PER UNIT	PER ACRE
A.	INCOME			
	NUMBER OF ACRES	333.75	$/Bu	
	TOTAL PRODUCTION	5931.50		17.77
	CROP VALUE	50788.87		152.18
	CROP INSURANCE RECEIPTS	2247.87		6.74
	MISCELLANEOUS RECEIPTS	160.50		0.48
	GROSS INCOME	53197.25	8.97	159.39
B.	OPERATING COSTS			
	FERTILIZER	7268.87		21.78
	CHEMICALS	3639.12		10.90
	SEED PURCHASED	1461.37		4.38
	HOME GROWN SEED	458.00		1.37
	CUSTOM WORK HIRED	712.75		2.14
	CROP AND HAIL INSURANCE	938.37		2.81
	CASH RENT AND CROP SHARE	8186.12		24.53
	POWER MACHINERY - FUEL	3042.25		9.12
	POWER MACHINERY - REPAIRS	2366.75		7.09
	GENERAL MACHINERY - REPAIRS			
	SPECIAL MACHINERY - REPAIRS			
	MISCELLANEOUS EQUIPMENT			
	BUILDING REPAIRS	336.00		1.01
	OPERATING CAPITAL INTEREST PD.	96.25		0.29
	UTILITIES	569.00		1.70
	OTHER INSURANCE	475.25		1.42
	PROPERTY TAXES	49.25		0.15
	ACCOUNTING AND LEGAL	372.75		1.12
	OTHER	407.75		1.22
	HIRED LABOUR	702.12		2.10
	TOOLS PURCHASED	154.87		0.46
	DEPRECIATION - IMPROVEMENTS	873.62		2.62
	DEPRECIATION - MACHINERY	7559.37		22.65
	TOTAL OPERATING COSTS	39669.87	6.69	118.86
C.	PRODUCTION COSTS			
	OPERATING COSTS	39669.87		118.86
	INT. ON EQUITY - OWNED LAND			
	INT. ON EQUITY - IMPROVEMENTS	932.75		2.79
	INT. ON EQUITY - MACHINERY	4239.08		12.70
	INT. ON EQUITY - SUPPLIES			
	INTEREST ON LONG TERM DEBT	1832.87		5.49
	OPERATOR'S LABOUR	5618.12		16.83
	FAMILY LABOUR	617.75		1.85
	TOTAL PRODUCTION COSTS	52910.42	8.92	158.53
D.	MANAGEMENT FACTORS			
	RETURN OVER OPERATING COSTS	13527.37	2.28	40.53
	RETURN TO MANAGEMENT	286.79	0.05	0.86
	LABOUR USED (HOURS)	920.25	0.16	2.76

		OPERATOR	LANDLORD	PER ACRE
E.	INVESTMENT ITEMS			
	SUPPLY INVENTORY			
	POWER MACHINERY	48291.87		144.69
	OTHER MACHINERY	19003.62		56.94
	BUILDINGS AND IMPROVEMENTS	14493.00	1149.50	46.87
	LAND		400500.00	1200.00
	TOTAL INVESTMENT	81788.50	401649.50	1448.50

Oats Production

In total, seven oats enterprises were studied for the 1983 crop year. As a result of the small number of oat enterprises studied, an analysis by land tenure was not possible. Instead, a general farm analysis was undertaken, the results of which are presented in Table 8. As shown in the table, the average oat producer had a total cropped acreage of 101.71 acres and an average yield of 54.83 bushels per acre. Expected return from this crop was $97.96 per acre or $1.79 per bushel.

The total operating costs for oats amounted to $89.07 per acre ($1.62 per bushel). Similar to what was experienced for the wheat, barley and canola crops, the most significant of the total operating costs was material inputs which totalled $28.69 per acre or 32.3 per cent of the total. This was followed by depreciation at $26.54 per acre and fuel and repairs at $11.90 per acre. Cash rent/crop share was also fairly significant at $11.38 per acre, accounting for approximately 12.8 per cent of the total operating costs. With a return of $97.96 per acre ($1.79 per bushel), and a total operating cost of $89.07 per acre ($1.62 per bushel), oats producers experienced a positive return over operating costs of $8.89 per acre ($0.16 per bushel). However, when non-cash production costs are included, these producers were short in their income by $64.77 per acre ($-1.18 per bushel) in covering their total costs. In terms of labour used in oats production, the average study participant reportedly spent 2.38 hours per acre.

Hay Production

Of the eleven participants studied for the 1983 crop year, only three were involved in hay production. As was the case with oats production, due to the insufficient number of study participants, analysis by land tenure was not possible. Rather, the analysis presented is quite general, attempting to average the costs and returns for hay production, regardless of whether the crop is grown on owned or rented land. It cannot be over emphasized that because of the relatively small sample and acreage, readers are advised to view the data presented in Table 9,

TABLE 8:

ALBERTA FARM ENTERPRISE RESEARCH PROJECT BARRHEAD REGION 4 SEPT 1984

OATS CROP ENTERPRISE - (7 Farms)

		TOTAL	PER UNIT	PER ACRE
A.	INCOME		$/Bu	
	NUMBER OF ACRES	101.71		
	TOTAL PRODUCTION	5576.86		54.83
	CROP VALUE	9955.43		97.88
	CROP INSURANCE RECEIPTS			
	MISCELLANEOUS RECEIPTS	8.57		0.08
	GROSS INCOME	9964.00	1.79	97.96
B.	OPERATING COSTS			
	FERTILIZER	1731.00		17.02
	CHEMICALS	86.71		0.85
	SEED PURCHASED	214.71		2.11
	HOME GROWN SEED	886.00		8.71
	CUSTOM WORK HIRED	173.43		1.71
	CROP AND HAIL INSURANCE	97.71		0.96
	CASH RENT AND CROP SHARE	1157.57		11.38
	POWER MACHINERY - FUEL	836.29		8.22
	POWER MACHINERY - REPAIRS	374.71		3.68
	GENERAL MACHINERY - REPAIRS			
	SPECIAL MACHINERY - REPAIRS			
	MISCELLANEOUS EQUIPMENT			
	BUILDING REPAIRS	89.36		0.88
	OPERATING CAPITAL INTEREST PD.	10.86		0.11
	UTILITIES	140.71		1.38
	OTHER INSURANCE	139.57		1.37
	PROPERTY TAXES	183.29		1.80
	ACCOUNTING AND LEGAL	39.14		0.38
	OTHER			
	HIRED LABOUR	104.86		1.03
	TOOLS PURCHASED	94.29		0.93
	DEPRECIATION - IMPROVEMENTS	262.14		2.58
	DEPRECIATION - MACHINERY	2437.00		23.96
	TOTAL OPERATING COSTS	9059.36	1.62	89.07
C.	PRODUCTION COSTS			
	OPERATING COSTS	9059.36		89.07
	INT. ON EQUITY - OWNED LAND	3849.24		37.84
	INT. ON EQUITY - IMPROVEMENTS	347.57		3.42
	INT. ON EQUITY - MACHINERY	1465.46		14.41
	INT. ON EQUITY - SUPPLIES			
	INTEREST ON LONG TERM DEBT	237.86		2.34
	OPERATOR'S LABOUR	1592.57		15.66
	FAMILY LABOUR			
	TOTAL PRODUCTION COSTS	16552.04	2.97	162.73
D.	MANAGEMENT FACTORS			
	RETURN OVER OPERATING COSTS	904.64	0.16	8.89
	RETURN TO MANAGEMENT	-6588.05	-1.18	-64.77
	LABOUR USED (HOURS)	242.57	0.04	2.38

		OPERATOR	LANDLORD	PER ACRE
E.	INVESTMENT ITEMS			
	SUPPLY INVENTORY			
	POWER MACHINERY	17308.86		170.17
	OTHER MACHINERY	4534.14		44.58
	BUILDINGS AND IMPROVEMENTS	5079.57	63.57	50.56
	LAND	56914.29	65142.86	1200.00
	TOTAL INVESTMENT	83836.81	65206.43	1465.31

TABLE 9:

ALBERTA FARM ENTERPRISE RESEARCH PROJECT BARRHEAD REGION 4 SEPT 1984

HAY CROP ENTERPRISE - (3 Farms)

		TOTAL	PER UNIT	PER ACRE
A.	INCOME		$/Ton	
	NUMBER OF ACRES	49.00		
	TOTAL PRODUCTION	165.00		3.37
	CROP VALUE	11382.00		232.29
	CROP INSURANCE RECEIPTS			
	MISCELLANEOUS RECEIPTS	10.00		0.20
	GROSS INCOME	11392.00	69.04	232.49
B.	OPERATING COSTS			
	FERTILIZER	176.67		3.61
	CHEMICALS			
	SEED PURCHASED			
	HOME GROWN SEED			
	CUSTOM WORK HIRED			
	CROP AND HAIL INSURANCE			
	CASH RENT AND CROP SHARE			
	POWER MACHINERY - FUEL	263.00		5.37
	POWER MACHINERY - REPAIRS	198.00		4.04
	GENERAL MACHINERY - REPAIRS			
	SPECIAL MACHINERY - REPAIRS			
	MISCELLANEOUS EQUIPMENT			
	BUILDING REPAIRS	17.00		0.35
	OPERATING CAPITAL INTEREST PD.	0.67		0.01
	UTILITIES	40.33		0.82
	OTHER INSURANCE	17.67		0.36
	PROPERTY TAXES	132.00		2.69
	ACCOUNTING AND LEGAL	10.67		0.22
	OTHER			
	HIRED LABOUR	146.67		2.99
	TOOLS PURCHASED	2.33		0.05
	DEPRECIATION - IMPROVEMENTS	64.67		1.32
	DEPRECIATION - MACHINERY	852.43		17.40
	TOTAL OPERATING COSTS	1922.10	11.65	39.23
C.	PRODUCTION COSTS			
	OPERATING COSTS	1922.10		39.23
	INT. ON EQUITY - OWNED LAND	3903.48		79.66
	INT. ON EQUITY - IMPROVEMENTS	84.93		1.73
	INT. ON EQUITY - MACHINERY	708.56		14.46
	INT. ON EQUITY - SUPPLIES			
	INTEREST ON LONG TERM DEBT	196.00		4.00
	OPERATOR'S LABOUR	481.67		9.83
	FAMILY LABOUR			
	TOTAL PRODUCTION COSTS	7296.74	44.22	148.91
D.	MANAGEMENT FACTORS			
	RETURN OVER OPERATING COSTS	9469.90	57.39	193.26
	RETURN TO MANAGEMENT	4095.26	24.82	83.58
	LABOUR USED (HOURS)	99.33	0.60	2.03

		OPERATOR	LANDLORD	PER ACRE
E.	INVESTMENT ITEMS			
	SUPPLY INVENTORY			
	POWER MACHINERY	3191.33		65.13
	OTHER MACHINERY	7585.00		154.80
	BUILDINGS AND IMPROVEMENTS	1226.33		25.03
	LAND	58800.00		1200.00
	TOTAL INVESTMENT	70802.62		1444.95

with some reservation, especially, when attempting to draw any firm conclusions.

The total number of acres of hay grown by the typical study participant was 49.0, and reported an average yield of 3.77 tons per acre. Anticipated return from this crop was estimated at $232.49 per acre ($69.04 per ton).

For hay producers, a total operating cost of $39.23 per acre ($11.65 per ton) was incurred. Of this total, approximately one half (47.8 per cent) was attributed to depreciation. Other significant costs were for fuel and repairs, fertilizer, and hired labour reported at $9.41, $3.61, and $2.99 per acre, respectively. Together, these accounted for 40.9 per cent of the total operating costs. As was observed, there was a positive return over operating costs of $193.26 per acre ($57.39 per ton) for the study participants analysed. When the total production cost is considered (that is, to include the non-cash costs), these participants experienced a return to management of $83.58 per acre ($24.82 per ton). The total labour hours spent by the average study participant in the production of hay was 2.03 hours per acre.

Summerfallow

In the 1983 crop year, seven of the eleven farms studied incorporated the practice of summerfallow into their crop rotation. All of these farms summerfallowed owned land and three farms chose to summerfallow rented land. Upon close examination of the study results as portrayed in Tables 10 and 11, The only significant difference in the operating cost structure for participants who summerfallowed owned land versus those who summerfallowed rented land was the land tax. For example, the total operating cost for summerfallowing owned land was $28.01 per acre as compared to $23.90 per acre for rented land the land tax associated with owned land amounted to $3.78 per acre. Most significant of the operating costs was depreciation, totalling $13.08 per acre for owned summerfallowed land as opposed to $13.95 per acre for rented summerfallowed land. Second to this was the cost of fuel and repairs at $6.34 per acre on rented land versus $7.48 per acre on owned land.

However, when total production costs are considered, their was quite a dramatic change in the cost structure of rented land versus owned land. That is, the total cost on owned land was approximately three times as great as that on rented land. To illustrate, owned land had a total production cost of $128.92 per acre whereas, on rented land it was $42.14 per acre. This difference is due to the high cost associated with owning land. For example, the cost of owning land for summerfallow practice was reported at $82.56 per acre, an amount that represented 64.1 per cent of the total costs. Total labour hours spent per acre summerfallowing were more or less the same at 1.36 and 1.12 hours for owned and rented land, respectively.

TABLE 10:

ALBERTA FARM ENTERPRISE RESEARCH PROJECT BARRHEAD REGION 4 SEPT 1984

SUMMERFALLOW CROP ENTERPRISE - (7 Farms)

OWNED

		TOTAL	PER UNIT	PER ACRE
A.	INCOME			
	NUMBER OF ACRES	197.14		
	TOTAL PRODUCTION			
	CROP VALUE			
	CROP INSURANCE RECEIPTS			
	MISCELLANEOUS RECEIPTS	64.43		0.33
	GROSS INCOME	64.43		0.33
B.	OPERATING COSTS			
	FERTILIZER			
	CHEMICALS			
	SEED PURCHASED			
	HOME GROWN SEED			
	CUSTOM WORK HIRED			
	CROP AND HAIL INSURANCE			
	CASH RENT AND CROP SHARE			
	POWER MACHINERY - FUEL	845.86		4.29
	POWER MACHINERY - REPAIRS	628.00		3.19
	GENERAL MACHINERY - REPAIRS			
	SPECIAL MACHINERY - REPAIRS			
	MISCELLANEOUS EQUIPMENT			
	BUILDING REPAIRS	81.74		0.41
	OPERATING CAPITAL INTEREST PD.	15.14		0.08
	UTILITIES	180.57		0.92
	OTHER INSURANCE	110.57		0.56
	PROPERTY TAXES	744.71		3.78
	ACCOUNTING AND LEGAL	134.14		0.68
	OTHER			
	HIRED LABOUR	174.71		0.89
	TOOLS PURCHASED	28.57		0.14
	DEPRECIATION - IMPROVEMENTS	246.14		1.25
	DEPRECIATION - MACHINERY	2332.14		11.83
	TOTAL OPERATING COSTS	5522.31		28.01
C.	PRODUCTION COSTS			
	OPERATING COSTS	5522.31		28.01
	INT. ON EQUITY - OWNED LAND	16275.60		82.56
	INT. ON EQUITY - IMPROVEMENTS	321.58		1.63
	INT. ON EQUITY - MACHINERY	1387.29		7.04
	INT. ON EQUITY - SUPPLIES			
	INTEREST ON LONG TERM DEBT	191.29		0.97
	OPERATOR'S LABOUR	1693.57		8.59
	FAMILY LABOUR	23.14		0.12
	TOTAL PRODUCTION COSTS	25414.76		128.92
D.	MANAGEMENT FACTORS			
	RETURN OVER OPERATING COSTS	-5457.88		-27.68
	RETURN TO MANAGEMENT	-25350.33		-128.59
	LABOUR USED (HOURS)	268.29		1.36

		OPERATOR	LANDLORD	PER ACRE
E.	INVESTMENT ITEMS			
	SUPPLY INVENTORY			
	POWER MACHINERY	15152.00		76.86
	OTHER MACHINERY	5482.71		27.81
	BUILDINGS AND IMPROVEMENTS	4594.00		23.30
	LAND	236571.37		1200.00
	TOTAL INVESTMENT	261800.12		1327.97

TABLE 11:

ALBERTA FARM ENTERPRISE RESEARCH PROJECT BARRHEAD REGION 4 SEPT 1984

SUMMERFALLOW CROP ENTERPRISE - (3 Farms)

RENTED

		TOTAL	PER UNIT	PER ACRE
A.	INCOME			
	NUMBER OF ACRES	175.67		
	TOTAL PRODUCTION			
	CROP VALUE			
	CROP INSURANCE RECEIPTS			
	MISCELLANEOUS RECEIPTS	173.00		0.98
	GROSS INCOME	173.00		0.98
B.	OPERATING COSTS			
	FERTILIZER			
	CHEMICALS			
	SEED PURCHASED			
	HOME GROWN SEED			
	CUSTOM WORK HIRED			
	CROP AND HAIL INSURANCE			
	CASH RENT AND CROP SHARE			
	POWER MACHINERY - FUEL	674.33		3.84
	POWER MACHINERY - REPAIRS	438.33		2.50
	GENERAL MACHINERY - REPAIRS			
	SPECIAL MACHINERY - REPAIRS			
	MISCELLANEOUS EQUIPMENT			
	BUILDING REPAIRS	139.00		0.79
	OPERATING CAPITAL INTEREST PD.			
	UTILITIES	187.00		1.06
	OTHER INSURANCE	99.00		0.56
	PROPERTY TAXES			
	ACCOUNTING AND LEGAL	165.00		0.94
	OTHER			
	HIRED LABOUR	22.33		0.13
	TOOLS PURCHASED	21.67		0.12
	DEPRECIATION - IMPROVEMENTS	257.33		1.46
	DEPRECIATION - MACHINERY	2194.67		12.49
	TOTAL OPERATING COSTS	4198.66		23.90
C.	PRODUCTION COSTS			
	OPERATING COSTS	4198.66		23.90
	INT. ON EQUITY - OWNED LAND			
	INT. ON EQUITY - IMPROVEMENTS	309.80		1.76
	INT. ON EQUITY - MACHINERY	1311.59		7.47
	INT. ON EQUITY - SUPPLIES			
	INTEREST ON LONG TERM DEBT	136.00		0.77
	OPERATOR'S LABOUR	1397.33		7.95
	FAMILY LABOUR	50.00		0.28
	TOTAL PRODUCTION COSTS	7403.38		42.14
D.	MANAGEMENT FACTORS			
	RETURN OVER OPERATING COSTS	-4025.67		-22.92
	RETURN TO MANAGEMENT	-7230.38		-41.16
	LABOUR USED (HOURS)	196.67		1.12

		OPERATOR	LANDLORD	PER ACRE
E.	INVESTMENT ITEMS			
	SUPPLY INVENTORY			
	POWER MACHINERY	13637.66		77.63
	OTHER MACHINERY	5924.66		33.73
	BUILDINGS AND IMPROVEMENTS	4425.66	282.67	26.80
	LAND		210800.00	1200.00
	TOTAL INVESTMENT	23988.00	211082.62	1338.16

SECTION III

SUMMARY OF COSTS AND RETURNS BY SIZE OF OPERATION

As was indicated earlier in Section I, different sizes of operations were selected so as to study the effect that size of operation has on the costs and returns for various crops analysed. Two size groups were considered, comprising of farms having less than 1,200 seeded acres (smaller farms), and those with 1,200 seeded acres and more (larger farms). As a note of interest, the average size of the smaller farms was 932 acres as compared to 1,900 acres for the larger farms. For the purpose of our study only three crops will be analysed barley, wheat and canola.

A general characteristic of any given enterprise in economic terms reveals that a production unit becomes more and more efficient as its scale of operation increase. However, continued expansion beyond a "certain" size results in what is often referred to by economists as "diseconomies to scale" whereby, as a result of limitations in management, labour, resource use, etc. the production unit becomes very inefficient in terms of costs relative to output. With this in mind, one would expect that as the size of operation for any given farm increase (in our case it is the number of acres), cost savings can be realized especially, in the areas of fixed overhead and operating costs. For example, machinery ownership costs will decrease as the number of acres increase since this fixed cost will be spread over a wider base as opposed to this very cost being spread over a smaller number of acres. Similarly, savings in operating costs can also be realized through the use of larger equipment, bulk-buying and more efficient use of labour and management. By the same token, cost per acre will decline as the number of acres increase resulting in a higher return to management.

Barley Production Costs By Size Of Operation

Presented in Table 12 are the production costs and returns for barley grown on smaller farms, as well as, on larger farms. Although

TABLE 12:

ALBERTA FARM ENTERPRISE RESEARCH PROJECT BARRHEAD REGION 4 SEPT 1984

BARLEY CROP ENTERPRISE - 11 Farms

		- Less than 1,200 Acres			1,200 Acres and Over		
A.	INCOME	TOTAL	PER UNIT	PER ACRE	TOTAL	PER UNIT	PER ACRE
	NUMBER OF ACRES	311.91	$/Bu		480.44	$/Bu	
	TOTAL PRODUCTION	16090.09		51.59	22963.66		47.80
	CROP VALUE	39270.36		125.90	63294.22		131.74
	CROP INSURANCE RECEIPTS						
	MISCELLANEOUS RECEIPTS	129.55		0.42			
	GROSS INCOME	39399.91	2.45	126.32	63294.22	2.76	131.74
B.	OPERATING COSTS						
	FERTILIZER	6508.27		20.87	9742.00		20.28
	CHEMICALS	3404.82		10.92	3384.44		7.04
	SEED PURCHASED	1231.91		3.95	530.00		1.10
	HOME GROWN SEED	1212.09		3.89	2576.89		5.36
	CUSTOM WORK HIRED	471.36		1.51	1646.00		3.43
	CROP AND HAIL INSURANCE	267.36		0.86	315.22		0.66
	CASH RENT AND CROP SHARE	4816.45		15.44	8265.66		17.20
	POWER MACHINERY - FUEL	2961.00		9.49	4395.11		9.15
	POWER MACHINERY - REPAIRS	2171.55		6.96	3148.33		6.55
	GENERAL MACHINERY - REPAIRS						
	SPECIAL MACHINERY - REPAIRS						
	MISCELLANEOUS EQUIPMENT						
	BUILDING REPAIRS	77.55		0.25	437.56		0.91
	OPERATING CAPITAL INTEREST PD.	75.82		0.24	142.44		0.30
	UTILITIES	620.00		1.99	653.89		1.36
	OTHER INSURANCE	315.36		1.01	556.44		1.16
	PROPERTY TAXES	641.64		2.06	632.33		1.32
	ACCOUNTING AND LEGAL	362.00		1.16	361.78		0.75
	OTHER				1120.00		2.33
	HIRED LABOUR	485.45		1.56	1950.89		4.06
	TOOLS PURCHASED	172.91		0.55	127.89		0.27
	DEPRECIATION - IMPROVEMENTS	982.91		3.15	1061.33		2.21
	DEPRECIATION - MACHINERY	8211.63		26.33	8527.22		17.75
	TOTAL OPERATING COSTS	34990.09	2.17	112.18	49575.44	2.16	103.19
C.	PRODUCTION COSTS						
	OPERATING COSTS	34990.09		112.18	49575.44		103.19
	INT. ON EQUITY - OWNED LAND	13573.18		43.52	10766.74		22.41
	INT. ON EQUITY - IMPROVEMENTS	1257.36		4.03	1118.95		2.33
	INT. ON EQUITY - MACHINERY	4768.50		15.29	4697.46		9.78
	INT. ON EQUITY - SUPPLIES						
	INTEREST ON LONG TERM DEBT	954.09		3.06	3832.11		7.98
	OPERATOR'S LABOUR	6543.91		20.98	6667.55		13.88
	FAMILY LABOUR				876.78		1.82
	TOTAL PRODUCTION COSTS	62087.11	3.86	199.06	77535.00	3.38	161.38

TABLE 12: Cont'd

D. MANAGEMENT FACTORS						
RETURN OVER OPERATING COSTS	4409.81	0.27	14.14	13718.78	0.60	28.55
RETURN TO MANAGEMENT	-22687.20	-1.41	-72.74	-14240.79	-0.62	-29.64
LABOUR USED (HOURS)	941.36	0.06	3.02	1418.00	0.06	2.95
E. INVESTMENT ITEMS	**OPERATOR**	**LANDLORD**	**PER ACRE**	**OPERATOR**	**LANDLORD**	**PER ACRE**
SUPPLY INVENTORY	55086.63		176.61	52513.55		109.30
POWER MACHINERY	17789.54		57.03	22868.55		47.60
OTHER MACHINERY	17962.36	973.91	60.71	17820.44	474.67	38.08
BUILDINGS AND IMPROVEMENTS	196800.00	177490.87	1200.00	159600.00	416933.31	1200.00
LAND						
TOTAL INVESTMENT	287638.50	178464.81	1494.36	252802.50	417408.00	1394.98

barley yields were eight per cent higher on the farms with less than 1,200 acres, their gross income was $126.32 per acre compared to $131.74 for the larger farms. A look at the operating costs shows that a definite cost advantage exists as the size of the farm increases. That is, for the smaller farms total operating cost was $112.18 per acre ($2.17 per bushel) compared to $103.19 per acre ($2.16 per bushel) for the larger farms. Upon closer comparison of the operating costs for the two types of operations, one sees that there was a cost disadvantage in terms of material inputs, depreciation, and fuel and repairs for the smaller farms. That is, total cost on a per acre basis for material inputs on smaller farms was $39.63 as opposed to $33.78 reported on larger farms. Similarly, depreciation was higher on smaller farms at $29.48 per acre compared to $19.96 per acre for larger farms. As was expected, larger farms had a higher cash rent/cost share cost of $17.20 per acre, reflecting a greater proportion of rented land in their operations. For the smaller farms their cash rent/crop share cost per acre was $15.44 per acre. Equally true were the costs for hired labour on larger farms. Larger farms reported a hired labour cost of $4.06 per acre versus $1.56 per acre reported for smaller farms. This was to be expected since the operator and his family because of the large size of the farm may not be able to fulfill all the labour demands, and as such, from time to time depend quite heavily on hired help.

Larger farms had a total production cost of $161.38 per acre ($3.38 per bushel) versus $199.06 per acre ($3.86 per bushel) reported by smaller farms. As was anticipated, machinery investment on smaller farms was quite high at $233.64 per acre. For the larger farms, this value was 49.0 per cent lower at $156.90 per acre.

As a result of lower operating costs, larger farms experienced a higher return over operating cost. Their return over operating costs was $28.55 per acre ($0.60 per bushel) compared to $14.14 per acre ($0.27 per bushel) reported by smaller farms. Again, due to the cost advantage that is often associated with size, larger farms exhibited a much more favorable return to management than did smaller farms. That is, large farms had a negative return to management of $29.64 per acre ($0.62 per bushel) versus the more negative value of $72.74 per acre ($1.41 per bushel) reported for smaller farms.

Wheat Production Costs By Size Of Operation

Costs and returns data for wheat production by farm size are shown in Table 13. Yields and returns on larger farms were astronomical compared to that on the smaller farms. The wheat yield on larger farms was 45.51 bushels with a gross income of $198.87 per acre. This compares to the yield of 24.67 bushels on smaller farms and a gross income of 115.18 per acre. It is interesting to note that total operating cost on a per acre basis for the smaller farms was less at $107.74 compared to $110.55 for the larger farms. However, if operating costs are compared on a per bushel basis, the situation is quite the reversed. That is, the higher yield of 45.51 bushels per acre on the larger farms provided for a wider base in terms of calculating the total operating cost on a per bushel basis, resulting in a cost of $2.43 per bushel. By the same reasoning, smaller farms with their lower yields were unable to spread their total operating costs over a wider base and thus, reported a higher cost of $4.37 per bushel.

In terms of return over operating costs, larger farms showed a definite advantage as they demonstrated a positive return over operating costs of $88.32 per acre ($1.94 per bushel). This compares with a return over operating costs for the smaller farms of $7.44 per acre ($0.30 per bushel).

As for return to management, the larger farms experienced a profit of $26.87 per acre ($0.59 per bushel) while the smaller farms were short of covering their production costs by $74.99 per acre or $3.04 per bushel.

Labour requirements on smaller farms averaged 2.59 hours per acre. For the larger farms this value was somewhat similar at 2.57 hours per acre. The typical study participant operating a smaller farm had a machinery investment of $201.77 per acre whereas on larger farms, a total machinery investment of $198.77 per acre was indicated.

TABLE 13:

ALBERTA FARM ENTERPRISE RESEARCH PROJECT BARRHEAD REGION 4 SEPT 1984

WHEAT CROP ENTERPRISE - (9 Farms)

		- Less Than 1,200 Acres			1,200 Acres and Over		
A.	INCOME	TOTAL	PER UNIT $/Bu	PER ACRE	TOTAL	PER UNIT $/Bu	PER ACRE
	NUMBER OF ACRES	230.00			193.75		
	TOTAL PRODUCTION	5673.33		24.67	8818.25		45.51
	CROP VALUE	24155.66		105.02	38168.00		197.00
	CROP INSURANCE RECEIPTS	1989.67		8.65	362.50		1.87
	MISCELLANEOUS RECEIPTS	347.00		1.51			
	GROSS INCOME	26492.33	4.67	115.18	38530.50	4.37	198.87
B.	OPERATING COSTS						
	FERTILIZER	5113.00		22.23	4267.75		22.03
	CHEMICALS	3047.67		13.25	1938.87		10.01
	SEED PURCHASED	307.00		1.33	218.75		1.13
	HOME GROWN SEED	1089.00		4.73	1600.87		8.26
	CUSTOM WORK HIRED	111.67		0.49	517.50		2.67
	CROP AND HAIL INSURANCE	140.00		0.61	331.50		1.71
	CASH RENT AND CROP SHARE	3135.33		13.63	2756.37		14.23
	POWER MACHINERY - FUEL	1844.00		8.02	1837.87		9.49
	POWER MACHINERY - REPAIRS	1861.00		8.09	898.37		4.64
	GENERAL MACHINERY - REPAIRS						
	SPECIAL MACHINERY - REPAIRS						
	MISCELLANEOUS EQUIPMENT						
	BUILDING REPAIRS	143.17		0.62	295.87		1.53
	OPERATING CAPITAL INTEREST PD.	177.33		0.77	68.63		0.35
	UTILITIES	484.00		2.10	333.50		1.72
	OTHER INSURANCE	135.67		0.59	340.75		1.76
	PROPERTY TAXES	560.00		2.43	227.75		1.18
	ACCOUNTING AND LEGAL	151.67		0.66	274.62		1.42
	OTHER				383.75		1.98
	HIRED LABOUR	112.67		0.49	244.12		1.26
	TOOLS PURCHASED	323.00		1.40	95.75		0.49
	DEPRECIATION - IMPROVEMENTS	719.67		3.13	489.25		2.53
	DEPRECIATION - MACHINERY	5324.66		23.15	4297.00		22.18
	TOTAL OPERATING COSTS	24780.50	4.37	107.74	21418.87	2.43	110.55
C.	PRODUCTION COSTS						
	OPERATING COSTS	24780.50		107.74	21418.87		110.55
	INT. ON EQUITY - OWNED LAND	9800.00		42.61	4819.92		24.88
	INT. ON EQUITY - IMPROVEMENTS	876.19		3.81	540.25		2.79
	INT. ON EQUITY - MACHINERY	2928.33		12.73	2457.52		12.68
	INT. ON EQUITY - SUPPLIES						
	INTEREST ON LONG TERM DEBT	388.67		1.69	977.62		5.05
	OPERATOR'S LABOUR	4967.00		21.60	2616.62		13.51
	FAMILY LABOUR				493.12		2.55
	TOTAL PRODUCTION COSTS	43740.64	7.71	190.18	33323.92	3.78	171.99

TABLE 13: Cont'd

D.	MANAGEMENT FACTORS					
	RETURN OVER OPERATING COSTS	1711.83	0.30	7.44	17111.62	1.94	88.32
	RETURN TO MANAGEMENT	-17248.33	-3.04	-74.99	5206.55	0.59	26.87
	LABOUR USED (HOURS)	595.00	0.10	2.59	498.25	0.06	2.57
E.	INVESTMENT ITEMS	OPERATOR	LANDLORD	PER ACRE	OPERATOR	LANDLORD	PER ACRE
	SUPPLY INVENTORY						
	POWER MACHINERY	29746.33		129.33	27975.25		144.39
	OTHER MACHINERY	16662.00		72.44	10536.12		54.38
	BUILDINGS AND IMPROVEMENTS	12517.00	1318.67	60.16	8539.25		44.07
	LAND	140000.00	136000.00	1200.00	70950.00	161550.00	1200.00
	TOTAL INVESTMENT	198925.31	137318.62	1461.93	118000.62	161550.00	1442.84

Canola Production Costs By Size Of Operation

A total of seventeen canola enterprises were analysed for the 1983 crop year, the results of which are shown in Table 14. Canola yields were 1.4 bushels per acre less for farms seeding less than 1,200 acres to grain and oilseeds (smaller farms) compared to those seeding 1,100 acres or more (larger farms). Average yield on the smaller farms was 15.94 bushels per acre while on the larger farms it was 17.38 bushels per acre.

Total operating costs as incurred on smaller farms averaged $119.01 per acre. For the larger farms, this value was similar at $114.12 per acre. Significantly high among the operating cost items on the smaller farms were cash rent/crop share at $19.18 per acre, which when expressed as a percentage, represented 16.8 per cent of the total operating cost. For the larger farms the cash rent/crop share cost was $15.68 per acre. A examination of the material input costs reveal that the cost on a per acre basis was much higher on larger farms at $41.50 as opposed to the $34.50 encountered by smaller farms. Total machinery repair and fuel costs on smaller farms amounted to $18.02 per acre. On the larger farms, it was lower at $14.89 per acre. Large farms reported a total depreciation cost of $22.63 per acre compared to $30.66 per acre experienced by smaller farms.

When considering the total production cost, this was much higher on smaller farms at $185.24 per acre ($11.62 per bushel) as opposed to $176.52 per acre ($10.16 per bushel) incurred by larger farms. The total machinery investment was lower on larger farms at $179.93 per acre compared to $241.71 per acre reported for smaller farms.

Return over operating costs for larger farms amounted to $55.75 per acre ($3.21 per bushel). For the smaller farms it was much lower at $23.28 per acre ($1.46 per bushel). Again, due to mainly higher ownership costs (interest and depreciation) associated with the investment, smaller farms experienced a much more negative return to management of $47.66 per acre ($2.99 per bushel) versus $6.65 per acre ($0.38 per bushel) reported for the larger farms. In terms of total labour hours spent, smaller farms utilized 2.95 hours per acre compared to 2.75 hours per acre reported for the larger farms.

TABLE 14:

ALBERTA FARM ENTERPRISE RESEARCH PROJECT BARRHEAD REGION 4 SEPT 1984

CANOLA CROP ENTERPRISE - (7 Farms)

		- Less Than 1,200 Acres			1,200 Acres and Over		
A.	INCOME	TOTAL	PER UNIT $/Bu	PER ACRE	TOTAL	PER UNIT $/Bu	PER ACRE
	NUMBER OF ACRES	177.14			266.00		
	TOTAL PRODUCTION	2824.43		15.94	4622.00		17.38
	CROP VALUE	23057.43		130.16	43104.80		162.05
	CROP INSURANCE RECEIPTS	1083.29		6.12	2080.00		7.82
	MISCELLANEOUS RECEIPTS	230.86		1.30			
	GROSS INCOME	24371.57	8.63	137.58	45184.80	9.78	169.87
B.	OPERATING COSTS						
	FERTILIZER	3383.71		19.10	5964.80		22.42
	CHEMICALS	1588.29		8.97	3102.10		11.66
	SEED PURCHASED	1006.29		5.68	1477.30		5.55
	HOME GROWN SEED	292.86		1.65	496.20		1.87
	CUSTOM WORK HIRED	328.00		1.85	638.80		2.40
	CROP AND HAIL INSURANCE	118.29		0.67	1007.60		3.79
	CASH RENT AND CROP SHARE	3397.14		19.18	4170.90		15.68
	POWER MACHINERY - FUEL	1631.57		9.21	2382.40		8.96
	POWER MACHINERY - REPAIRS	1560.86		8.81	1577.60		5.93
	GENERAL MACHINERY - REPAIRS						
	SPECIAL MACHINERY - REPAIRS						
	MISCELLANEOUS EQUIPMENT						
	BUILDING REPAIRS	94.64		0.53	305.90		1.15
	OPERATING CAPITAL INTEREST PD.	34.86		0.20	105.00		0.39
	UTILITIES	367.29		2.07	411.30		1.55
	OTHER INSURANCE	150.71		0.85	428.40		1.61
	PROPERTY TAXES	245.00		1.38	301.20		1.13
	ACCOUNTING AND LEGAL	191.43		1.08	289.30		1.09
	OTHER	58.86		0.33	918.10		3.45
	HIRED LABOUR	246.00		1.39	652.00		2.45
	TOOLS PURCHASED	120.29		0.68	107.20		0.40
	DEPRECIATION - IMPROVEMENTS	576.00		3.25	632.40		2.38
	DEPRECIATION - MACHINERY	4855.71		27.41	5386.20		20.25
	TOTAL OPERATING COSTS	20247.79	7.17	114.30	30354.70	6.57	114.12
C.	PRODUCTION COSTS						
	OPERATING COSTS	20247.79		114.30	30354.70		114.12
	INT. ON EQUITY - OWNED LAND	4524.00		25.54	6886.65		25.89
	INT. ON EQUITY - IMPROVEMENTS	686.83		3.88	662.72		2.49
	INT. ON EQUITY - MACHINERY	2760.43		15.58	2996.60		11.27
	INT. ON EQUITY - SUPPLIES						
	INTEREST ON LONG TERM DEBT	464.00		2.62	1812.90		6.82
	OPERATOR'S LABOUR	4130.57		23.32	3556.20		13.37
	FAMILY LABOUR				684.80		2.57
	TOTAL PRODUCTION COSTS	32813.60	11.62	185.24	46954.54	10.16	176.52

TABLE 14: Cont'd

D. MANAGEMENT FACTORS						
RETURN OVER OPERATING COSTS	4123.79	1.46	23.28	14830.10	3.21	55.75
RETURN TO MANAGEMENT	-8442.04	-2.99	-47.66	-1769.78	-0.38	-6.65
LABOUR USED (HOURS)	523.43	0.19	2.95	731.70	0.16	2.75
E. INVESTMENT ITEMS	**OPERATOR**	**LANDLORD**	**PER ACRE**	**OPERATOR**	**LANDLORD**	**PER ACRE**
SUPPLY INVENTORY						
POWER MACHINERY	31094.43		175.53	33736.00		126.83
OTHER MACHINERY	11723.14		66.18	14123.50		53.10
BUILDINGS AND IMPROVEMENTS	9811.86	1141.71	61.83	10772.00	120.40	40.95
LAND	66000.00	146571.37	1200.00	101400.00	217800.00	1200.00
TOTAL INVESTMENT	118629.37	147713.12	1503.55	160031.50	217920.37	1420.87